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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.         | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------------|------------------|
| 10/774,389  | 02/10/2004  | Toshiya Uemura       | PTGF-03083                  | 9738             |
| 21254 7590 02/26/2007<br>MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC<br>8321 OLD COURTHOUSE ROAD<br>SUITE 200<br>VIENNA, VA 22182-3817 |             |                      | EXAMINER<br>LOUIE, WAI SING |                  |
|   |             |                      | ART UNIT<br>2814            | PAPER NUMBER     |
| SHORTENED STATUTORY PERIOD OF RESPONSE  |             | MAIL DATE            | DELIVERY MODE               |                  |
| 3 MONTHS  |             | 02/26/2007           | PAPER                       |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/774,389 | <b>Applicant(s)</b><br>UEMURA, TOSHIYA |  |
|                              | <b>Examiner</b><br>Wai-Sing Louie    | <b>Art Unit</b><br>2814                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/29/06, 8/30/06</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin et al.  
(US 6,603,151).

With regard to claim 1, Lin et al. disclose a high-efficiency electro-optical device (col. 3, line 22 et seq. and fig. 5), comprising:

- A semiconductor light-emitting element 160 including a substrate 170, where light radiates from a light emission surface of the substrate 170 of the EL element 160, the light emission surface being provided on the substrate 170 opposite to an electrode 180 forming surface of the substrate 170 (col. 4, lines 29-40 and fig. 5b);
- A transparent structure 210 mounted on the light emission surface of the substrate 170, where the transparent structure 210 is optically connected with the light emission surface and has a light distribution characteristic based on a three-dimensional shape 203 of the transparent structure 210 (col. 4, lines 53-63 and fig. 5b);

- A p-electrode 190 and an n-electrode 180 formed opposite to the light emission surface of the light-emitting element 160 (fig. 5b).

With regard to claim 2, Lin et al. disclose the transparent structure 210 has a length in the horizontal direction greater than that of the semiconductor light-emitting element 160 (fig. 5b).

With regard to claim 3, Lin et al. disclose the transparent structure 210 has a thickness half of that of the semiconductor light-emitting element 160 to twice the length of a shorter side of the semiconductor light-emitting element 160 (fig. 5b).

With regard to claim 4, Lin et al. disclose the transparent structure 210 has a microscopic uneven surface 217 to diffuse light (fig. 6a).

With regard to claim 5, Lin et al. disclose the transparent structure 210 has a reflection layer 215 formed on its surface (fig. 5a).

With regard to claim 7, Lin et al. disclose the electrodes 180 and 190 are electrically connected to the light-emitting element 160 (col. 4, lines 31-34), but do not disclose the electrodes are optically connected to the light-emitting element 160. Inherently, the electrodes do not transmit light.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-9 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,603,151) in view of Lowery et al. (US 6,351,069).

With regard to claims 6, 14-15, and 18-20 Lin et al. disclose one of the lead frame 200 has a cup portion (fig. 5a), and the transparent structure 210 is fixed on the cup portion, but do not disclose the transparent structure 210 is fixed on the cup portion through adhesive resin with light diffusion material mixed in. However, Lowery et al. disclose the adhesive resin 13 with phosphor (light diffusion material) mixed (Lowery col. 6, lines 64-67). Lowery et al. teach the phosphor can convert the light into a longer peak wavelength to have a secondary color light (Lowery col. 1, lines 22-25). Thus, it would have been obvious at the time the invention was made to modify Lin's device with the teaching of Lowery et al. to provide light diffusion material in the adhesive resin in order to convert the light into a longer peak wavelength to have a secondary color light.

With regard to claims 8 and 16-17, in addition to the limitations disclosed in claims 1-2 and 6 above, Lin et al. also discloses:

- Lead frames 200 and 205 that are electrically connected to electrodes 180 and 190 formed on the electrode forming surface through wires (fig. 5a);
- Lin et al. modified by Lowery et al. disclose a light transmitting resin 38 that seals the semiconductor light-emitting element 160 and the transparent structure 210 (Lowery fig. 3), the resin 38 including a phosphor 22 to wavelength-convert light emitted from the semiconductor light-emitting element 160 (Lowery col. 7, lines 20-30).

With regard to claim 9, Lin et al. modified by Lowery et al. disclose two kinds of phosphors 22 and 40 (Lowery col. 5, lines 5-7).

Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,603,151) in view of Hata et al. (US Pub. 2003/0057434).

With regard to claims 10-11, Lin et al. disclose the light-emitting element 10 comprises a substrate 20, an n-type semiconductor layer, a light-emitting (active) layer, and a p-type semiconductor layer (col. 1, lines 20-25), but do not disclose a buffer layer. However, Hata et al. disclose a light-emitting diode having a buffer layer 11 (Hata paragraph [0057] and fig. 1). Hata et al. teach a buffer layer could reduce the propagation of defects and improve the crystalline quality (Hata paragraph [0019]). Therefore, it would have been obvious at the time the invention was made to modify Lin's device with the teaching of Hata et al. to provide a buffer layer in order to reduce the propagation of defects and improve the crystalline quality. Lin et al. modified by Hata disclose a gallium nitride based semiconductor device.

With regard to claims 12-13, Lin et al. modified by Hata disclose the substrate is sapphire (Hata paragraph [0054]). Lin et al. disclose the transparent structure 210 is ITO, ZnO, IZO CTO etc. However, using sapphire as material for the transparent structure is held as duplication of parts, which would have been obvious. *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960).

*Response to Arguments*

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

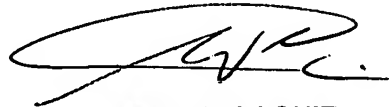
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is (571) 272-1709. The examiner can normally be reached on 7:30 AM to 4:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



WAI-SING LOUIE  
PRIMARY PATENT EXAMINER

Wsl  
February 15, 2007.